



## Application for Certification as an Eligible Energy Resource Under the Delaware Renewable Energy Portfolio Standard

1. Name of Facility  
Mezzaroba, Santo Residence - S Mezzaroba

2. Facility Address  
17 Bennett St  
Selbyville, DE 19975

Is the facility located within the PJM control area? ☒ Yes ☐ No  
If No, does the Facility have import capabilities? ☐ Yes ☐ No

3. Name of Owner  
Santo Mezzaroba  
Mailing Address  
17 Bennett St  
Selbyville, DE 19975

Phone 267-808-8245 Fax

Email santoj.mezzaroba@gmail.com

4. Name of Operator  
same as owner  
Mailing Address

Phone Fax

Email

5. Name of Contact Person

Allyson Browne, SRECTrade, Inc.

Mailing Address

201 California Street, Suite 630

San Francisco, CA 94111

Phone 877-466-4606 Fax 732-453-0065

Email applications@srectrade.com

6. Name of REC/SREC Owner

same as owner

Mailing Address

Phone Fax

Email

7. List all PJM-EIS GATS State Certification Numbers assigned to this facility:

8. Operational Characteristics:

Fuel Types Used (check all that apply):

☐ Gas combustion from the anaerobic digestion of organic material

☐ Geothermal

☐ Ocean, wave or tidal actions, currents, or thermal differences

☐ Qualified Biomass<sup>i</sup>

☐ Qualified Fuel Cells<sup>ii</sup>

☐ Qualified Hydroelectric<sup>iii</sup>

☐ Qualified Methane Gas captured from a landfill gas recovery system<sup>iv</sup>

☒ Solar

☐ Wind

If co-firing, provide the formula on file with PJM Environmental Information Services, Inc. (PJM-EIS) n/a

Rated Capacity (in megawatts) 0.01344 MW ✓

If multiple fuel types are utilized, attach the formula for computing the proportion of output per fuel type by megawatts per hour generated.

Facility **Final Approved Interconnection Date** 7/9/15 ✓

If co-firing with fossil fuels, co-fire start date n/a

If co-firing with fossil fuels, attach the allocation formula on file with PJM.

9. Is the Applicant's facility customer-sited generation<sup>v</sup>?

☒ Yes ☐ No

Is the Applicant's facility a community owned generating facility<sup>vi</sup>?

☐ Yes ☒ No

Can the output from the customer-sited generation be appropriately metered?

☒ Yes ☐ No

I, Allyson Browne (print name) hereby certify under penalty of perjury that

1. I have made reasonable inquiry, and the information contained in this Application is true and correct to the best of my knowledge, information and belief.
2. I am authorized to submit and execute this Application and to bind myself and/or my company to the representations contained herein.
3. I /my company agree(s) to comply with and be subject to the jurisdiction of the Public Service Commission of the State of Delaware for any matters arising out of my submission of this Application or the granting of the Application.
4. In the event that any of the information contained in this Application changes pending the consideration of this Application or after the Application is granted, I/my company will amend the Application to provide the Commission with such changed information.
5. I acknowledge that if any of the representations made in this Application or in any amendment thereto are found to be untrue when made, I/the company may be subject to sanctions, including but not limited to monetary fines and/or the revocation of any Certificate granted as a result of the representations made in this Application.

Signature: Allyson Browne

Date: 9/28/2015



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**PART 1**

**DELAWARE LEVEL 2, 3, & 4 INTERCONNECTION APPLICATION & AGREEMENT**

**With Terms and Conditions for Interconnection**

**(Lab Certified Inverter-Based Generator Facilities Greater than 10 kW and Less than or Equal to 2 MW)<sup>2</sup>**

**(Application & Conditional Agreement – to be completed prior to installation)**

**INTERCONNECTION CUSTOMER CONTACT INFORMATION**

Customer Name: Santo Mezzaroba

Mailing Address: 17 Bennett St

City: Selbyville State: DE Zip Code: 19975

Contact Person (if other than above): \_\_\_\_\_

Mailing Address (if other than above): \_\_\_\_\_

Telephone (Daytime): 302-988-8037 (Evening): \_\_\_\_\_

Facsimile Number: \_\_\_\_\_ E-Mail Address (Required): santoj.mezzaroba@gmail.com

**Alternate Contact Information**

Name: \_\_\_\_\_

Mailing Address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip Code: \_\_\_\_\_

Telephone (Daytime): \_\_\_\_\_ (Evening): \_\_\_\_\_

Facsimile Number: \_\_\_\_\_ E-Mail Address: \_\_\_\_\_

**FACILITY INFORMATION**

Facility Address: 17 Bennett St

City: Selbyville State: DE Zip Code: 19975

DPL Account # of Facility site: 5501 0804 445

Energy Source: Photovoltaics ☒ Prime Mover: Photovoltaics ☒

**TYPE OF APPLICATION:** Initial ☒ Addition/Upgrade ☐ <sup>3</sup>

DC Nameplate Rating: 13.44 (kW) <sup>13440</sup> (kVA), AC Inverter Rating 11.4 (kW), AC System  
Design Capacity: 11.4 (kW) <sup>114000</sup> (kVA)

<sup>2</sup> Up to 10 MW for interconnection requests to a radial distribution circuit pursuant to Title 26 – Chapter 10 – §1014.

<sup>3</sup> Initial if first time generator request. Addition/Upgrade if this is an add-on to a previously approved system.

Generator (or PV Panel) Manufacturer, Model # Rating: SolarWorld 280w Mono  
(A copy of Generator Nameplate and Manufacturer's Specification Sheet May Also be Submitted)

Number of Generators (or PV Panels): 48

Inverter Manufacturer: Fronius Model # & Rating: IG Plus 11.4 UNI

Number of Inverters: 1

Ampere Rating: 47.5 Amps<sub>AC</sub>, Number of Phases: ☒ 1 ☐ 3, Voltage Rating: 240 V<sub>AC</sub>,

Nominal DC Voltage: 474 V<sub>DC</sub>, Power Factor: 100 %, Frequency: 60 Hz,

DPL Accessible Disconnect or Lock Box: ☒ Yes ☐ No, If Yes, Location: \_\_\_\_\_

One-line Diagram Attached (Required): ☒ Yes ☐ No

Site Plan Attached (Required): ☒ Yes ☐ No

Do you plan to export power?<sup>4</sup> ☒ Yes ☐ No, If Yes, Estimated Maximum: 10 kW<sub>AC</sub>

Estimated Gross Annual Energy Production: 15283 kWh

Is the inverter IEEE/UL1741 lab certified? Yes ☒ No ☐ (If yes, attach manufacturer's cut sheet showing listing and label information from the appropriate listing authority, e.g. UL 1741 listing. If no, facility is not eligible.)

Estimated Commissioning Date: 4/1/15

**Electric Service Information for Customer Facility Where Generator Will Be Interconnected**  
(If primary service is from DPL but customer owns their own transformer)

Capacity: 200 (Amps) Voltage: 240 (Volts)

Type of Service: ☒ Single Phase ☐ Three Phase

If 3 Phase Transformer, Indicate Type

Primary Winding ☐ Wye ☐ Delta

Secondary Winding ☐ Wye ☐ Delta

Transformer Size: \_\_\_\_\_ Impedance: \_\_\_\_\_

**Intent of Generation:**

☐ Offset Partial Load (Unit will operate in parallel, but will not export power at any time to EDC)

☒ Net Meter (Unit will operate in parallel and will export power pursuant to Delaware Net Metering or other filed tariff(s))

☐ Wholesale Market Transaction (Unit will operate in parallel and participate in PJM market(s) pursuant to a PJM Wholesale Market Participation Agreement)

☐ Back-up Generation (Units that temporarily parallel for more than 100 milliseconds) Note: Backup units that do not operate in parallel for more than 100 milliseconds do not need an interconnection agreement.

**Generator & Prime Mover Data:**

Energy Source: Photovoltaics ☒

Energy Converter Type: Inverter

Generator Size (kW or kVA): 11.4 Number of Generator Units: 1

Total Electrical Generation Capacity (kW or kVA): 11.400

Generator Type: ☐ Induction ☒ Inverter ☐ Synchronous ☐ Other: \_\_\_\_\_

**Requested Procedure Under Which to Evaluate Interconnection Request:**

Please indicate below which review procedure applies to the interconnection request.

- ☒ **Level 2 - Certified interconnection equipment with an aggregate electric nameplate capacity less than or equal to 2 MW. Indicate type of certification below. (Application fee amount is \$50 plus \$1 per KW).**
- ☒ **Lab certified** - tested to IEEE 1547.1 and other specified standards by a nationally recognized testing laboratory and is appropriately labeled.
- ☐ **Field approved** - Identical interconnection has been approved by an EDC under a Level 4 study review process within the prior 36 months of the date of this interconnection request.
- ☐ **Level 3** - Small generator facility does not export power. Nameplate capacity rating is equal to less than 50KW if connecting to area network or equal to or less than 10 MW if connecting to a radial distribution feeder. (Application fee amount is \$100 plus \$2 per KW).
- ☐ **Level 4** - Nameplate capacity rating is less than or equal to 10 MW and the small generator facility does not qualify for a Level 1, Level 2 or Level 3 review or, the small generator facility has been reviewed but not approved under a Level 1, Level 2 or Level 3 review. (Application fee amount is \$100 plus \$2 per KW, to be applied toward any subsequent studies related to this application).

**Note:** Descriptions for interconnection review categories do not list all criteria that must be satisfied. For a complete list of criteria, please refer to the Delaware Standard Small Generator Interconnection Procedures, Title 26 - Public Utilities - Chapter 10. Electric Utility Restructuring §1014.

**Field Approved Equipment:**

If the field approved equipment box is checked above, please provide the estimated completion date in the section that follows, then sign the application and return it with the following information that is required for review of Level 2 field approved small generator facilities:

- A copy of the certificate of completion for the previously approved small generator facility,
- A written statement indicating that the interconnection equipment being proposed is identical, except for minor equipment modification, to the one previously approved.

You do not have to complete the rest of the application if field approved equipment is being proposed.

<sup>4</sup> Yes, if your expected maximum output of the inverter (kW AC) is greater than the lowest load you anticipate at your facility during maximum PV output (kW). The difference would be the amount you may export.

### Small Generator Facility Information:

List interconnection components/system(s) to be used in the Small Generation Facility that are lab certified (required for Level 2 Interconnection requests only).

Component/System	NRTL Providing Label & Listing
1. SolarWorld 280w Mono	UL 1703
2. Fronius IG Plus 11.4 UNI	UL 1741
3. _____	_____
4. _____	_____
5. _____	_____

*Please provide copies of manufacturer brochures or technical specifications*

### Energy Production Equipment/Inverter Information:

☐ Synchronous    ☐ Induction    ☒ Inverter    ☐ Other \_\_\_\_\_

Rating: 11.4 kW    Rating: 11400 kVA

Rated Voltage: 240 Volts

Rated Current: 47.5 Amps

System Type Tested (Total System): ☒ Yes    ☐ No; attach product literature

### For Synchronous Machines:

**Note: Contact EDC to determine if all the information requested in this section is required for the proposed small generator facility.**

Manufacturer: \_\_\_\_\_

Model No. \_\_\_\_\_ Version No. \_\_\_\_\_

Submit copies of the Saturation Curve and the Vee Curve

☐ Salient    ☐ Non-Salient

Torque: \_\_\_\_\_ lb-ft    Rated RPM: \_\_\_\_\_    Field Amperes: \_\_\_\_\_ at rated generator voltage and current and \_\_\_\_\_ % PF over-excited

Type of Exciter: \_\_\_\_\_

Output Power of Exciter: \_\_\_\_\_

Type of Voltage Regulator: \_\_\_\_\_

Locked Rotor Current: \_\_\_\_\_ Amps    Synchronous Speed: \_\_\_\_\_ RPM

Winding Connection: \_\_\_\_\_ Min. Operating Freq./Time: \_\_\_\_\_

Generator Connection: ☐ Delta    ☐ Wye    ☐ Wye Grounded

Direct-axis Synchronous Reactance: (Xd) \_\_\_\_\_ ohms

Direct-axis Transient Reactance: (X'd) \_\_\_\_\_ ohms

Direct-axis Sub-transient Reactance: (X''d) \_\_\_\_\_ ohms

Negative Sequence Reactance: \_\_\_\_\_ ohms

Zero Sequence Reactance: \_\_\_\_\_ ohms

Neutral Impedance or Grounding Resistor (if any): \_\_\_\_\_ ohms



**For Induction Machines:**

**Note:** Contact EDC to determine if all the information requested in this section is required for the proposed small generator facility.

Manufacturer: \_\_\_\_\_  
Model No. \_\_\_\_\_ Version No. \_\_\_\_\_  
Locked Rotor Current: \_\_\_\_\_ Amps  
Rotor Resistance (Rr) \_\_\_\_\_ ohms    Exciting Current \_\_\_\_\_ Amps  
Rotor Reactance (Xr) \_\_\_\_\_ ohms    Reactive Power Required: \_\_\_\_\_  
Magnetizing Reactance (Xm) \_\_\_\_\_ ohms    \_\_\_\_\_ VARs (No Load)  
Stator Resistance (Rs) \_\_\_\_\_ ohms    \_\_\_\_\_ VARs (Full Load)  
Stator Reactance (Xs) \_\_\_\_\_ ohms  
Short Circuit Reactance (X'd) \_\_\_\_\_ ohms  
Phases: ☐ Single ☐ Three-Phase  
Frame Size: \_\_\_\_\_ Design Letter: \_\_\_\_\_ Temp. Rise: \_\_\_\_\_ °C.

**Reverse Power Relay Information (Level 3 Review Only):**

Manufacturer: \_\_\_\_\_  
Relay Type: \_\_\_\_\_ Model Number: \_\_\_\_\_  
Reverse Power Setting: \_\_\_\_\_  
Reverse Power Time Delay (if any): \_\_\_\_\_

**Additional Information for Inverter Based Facilities**

**Inverter Information:**

Manufacturer: Fronius    Model: IG Plus 11.4 UNI  
Type: ☐ Forced Commutated    ☒ Line Commutated  
Rated Output 11.4    Watts 240    Volts  
Efficiency 96 %    Power Factor 100 %  
Inverter UL1547 Listed:    ☒ Yes    ☐ No

**DC Source / Prime Mover:**

Rating: 13.44 kW    Rating: 13400 kVA  
Rated Voltage: 240 Volts  
Open Circuit Voltage (if applicable): 474 Volts  
Rated Current: 36.28 Amps  
Short Circuit Current (if applicable): 38.84 Amps

**EQUIPMENT INSTALLATION CONTRACTOR**Check if owner-installed ☐

Name: Alutech United Inc  
Mailing Address: 117 Dixon St  
City: Selbyville State: DE Zip Code: 19975  
Telephone (Daytime): 800-233-1144 (Evening): 302-841-9059  
Facsimile Number: 302-436-5100 E-Mail Address (Required): derek@ecshutters.com

**ELECTRICAL CONTRACTOR**

Name: Alutech United Inc  
Mailing Address: 117 Dixon St  
City: Selbyville State: DE Zip Code: 19975  
Telephone (Daytime): 800-233-1144 (Evening): 302-841-9059  
Facsimile Number: 302-436-5100 E-Mail Address: russell@alutech.com  
License number: T1-0005686

**INSURANCE DISCLOSURE**

The attached terms and conditions contain provisions related to liability and indemnification, and should be carefully considered by the interconnection customer. The interconnection customer is not required to obtain general liability insurance coverage as a precondition for interconnection approval; however, the interconnection customer is advised to consider obtaining appropriate insurance coverage to cover the interconnection customer's potential liability under this agreement.

**CUSTOMER SIGNATURE**

I hereby certify that: 1) I have read and understand the terms and conditions which are attached hereto by reference and are a part of this Agreement; 2) I hereby agree to comply with the attached terms and conditions; and 3) to the best of my knowledge, all of the information provided in this application request form is complete and true. I consent to permit the PSC and interconnecting utility to exchange information regarding the generating system to which this application applies.

Interconnection Customer Signature: Santo J Mezzaroba Date: 2/17/15

Printed Name: Santo Mezzaroba Title: Homeowner

**Application Fee:**

Refer to fees on page 25. Since Level 2 – 4 applications require an application fee, please submit via Mail the application fee in conjunction with the customer application and signed interconnection agreement.



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**PART 2**

**DELAWARE LEVEL 2, 3, & 4 INTERCONNECTION APPLICATION & AGREEMENT**

**With Terms and Conditions for Interconnection**  
**(Lab Certified Inverter-Based Generator Facilities Greater than 10 kW and Less than or Equal to 2 MW)**

*(Final Agreement –must be completed after installation and prior to interconnection)*

**Certificate of Completion**

**INTERCONNECTION CUSTOMER CONTACT INFORMATION**

Customer Name: Santo Mezzaroba  
Mailing Address: 17 Bennett St  
City: Selbyville State: DE Zip Code: 19975  
Telephone (Daytime): 302-988-8037 (Evening): \_\_\_\_\_  
Facsimile Number: \_\_\_\_\_ E-Mail Address: santoj.mezzaroba@gmail.com

**FACILITY INFORMATION**

Facility Address: 17 Bennett St  
City: Selbyville State: DE Zip Code: 19975

DPL Account # of Facility site: 5501 0804 445

Energy Source: Photovoltaics ☒ Prime Mover: Photovoltaics ☒  
DC Nameplate Rating: 13.44 (kW) 13440 (kVA), AC Inverter Rating 11.4 (AC kW), AC System  
Design Capacity: 11.4 (kW) 11400 (kVA)

Generator (or PV Panel) Manufacturer, Model #: SolarWorld 280w Mono

Inverter Manufacturer: Fronius Model # & Rating: IG Plus 11.4 UNI

Number of Inverters: 1

**EQUIPMENT INSTALLATION CONTRACTOR**

Check if owner-installed ☐

Name: Alutech United Inc  
Mailing Address: 117 Dixon St  
City: Selbyville State: DE Zip Code: 19975  
Telephone (Daytime): 800-233-1144 (Evening): 302-841-9059  
Facsimile Number: 302-436-5100 E-Mail Address: derek@ecshutters.com

**FINAL ELECTRIC INSPECTION AND INTERCONNECTION CUSTOMER SIGNATURE**

The Small Generator Facility is complete and has been approved by the local electric inspector having jurisdiction. A signed copy of the electric inspector's form indicating final approval is attached. The Interconnection Customer acknowledges that it shall not operate the Small Generator Facility until receipt of the final acceptance and approval by the EDC as provided below.

Signed: *Santo Mezzaroba* Date 05-14-2015  
(Signature of interconnection customer)

Printed Name: Santo Mezzaroba

Type of Application: New/Initial ☒ Growth/Increase ☐ System Capacity 13.44 KW (DC)

Check if copy of signed electric inspection form is attached (required) ☒

Check if copy of as built documents is attached (projects larger than 10 kW only) ☐

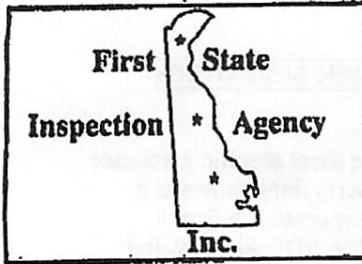
**ACCEPTANCE AND FINAL APPROVAL FOR INTERCONNECTION (for EDC use only)**

The interconnection agreement is approved and the Small Generator Facility is approved for interconnected operation upon the signing and return of this Certificate of Completion by EDC:

Electric Distribution Company waives Witness Test? (Initial) Yes EDC No ( )  
If not waived, date of successful Witness Test: \_\_\_\_\_ Passed: (Initial) ( )

EDC Signature: *Diana C. DeAngelis* Date: 7/9/15

Printed Name: Diana C. DeAngelis Title: Reg. Affairs Lead



First State Inspection Agency, Inc.  
1001 Mattlind Way  
Milford, DE 19963

1-800-468-7338  
302-422-3859

Alutech United, Inc.  
James Rodrigue  
PO Box 329  
Seaboard, DE 19975

## CERTIFICATE

Final Inspection Date:	5-19-96
Application #:	01126
Owner:	Santo Mezzaroba
Occupancy:	Solar Array
Location:	17 Bennett St. Seaboard, DE 19975

This certifies that the installation of electrical equipment listed on referenced application has been approved, meeting the requirements of the National Electric Code, utility requirements and Agency rules. Any modification, addition or alteration of the electrical system, after the date of final inspection, will require a new application for inspections and certifications.

*Robert L. Luth*  
Chief Electrical Inspector

F.S. CERT

FSIA-4

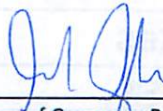


10. If the Applicant's installation is solar or wind sited in Delaware, is a minimum of 50% of the cost of the renewable energy equipment, inclusive of mounting components, manufactured in Delaware?

☐ Yes\* ☒ No

Alutech United, Inc

Company Name of Installer

  
Signature of Company Representative

117 Dixon Street

Address

Selbyville, DE 19975

Address

Derek Dykes

Print Name of Co. Representative

\*If Yes, please attach the following documentation:

- A copy of the supplier's invoice showing Delaware manufactured equipment with this facility identified
  - If the supplier's invoice shows only a coded Purchase Order (PO) number, a copy of the company's matching PO that includes the address where the materials were used/installed, must also be supplied
  - If using a master invoice, a record of the draws against the purchased quantity, on the master invoice, must show the address of each use and the quantity of material used

11. If the Applicant's installation is solar or wind sited in Delaware:

a. Was the facility physically constructed or installed with a workforce that consists of at least 75% Delaware residents?

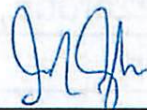
☐ Yes\* ☒ No

b. Does the installing company employ, in total, a minimum of 75% workers who are Delaware residents?

☒ Yes\* ☐ No

Alutech United, Inc

Company Name of Installer

  
Signature of Company Representative

117 Dixon Street

Address

Selbyville, DE 19975

Address

Derek Dykes

Print Name of Co. Representative

\*If Yes, please attach supporting documentation (see pages 7-8 for details). Please note, in order to qualify for the Labor/Workforce Bonus, at least one of the options (a. or b.) must be met.

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**Documentation Required for Delaware Labor/Workforce Bonus**

11. If the Applicant's installation is solar or wind sited in Delaware:

- b. Does the installing company employ, in total, a minimum of 75% of workers who are Delaware residents?

If you answered yes to "b." above, complete the following as evidence:

Alutech United Inc

Installation Company Name

employed the following individuals (list EVERY employee on the payroll during the period from project start date until project completion date). Projects are considered complete upon final interconnection approval to operate. (Attach additional sheets if necessary)

Project Start Date: 5/11/15 Project Complete Date: 7/9/15

Employee Full Name	Home Address (As per Tax Withholding)	Social Security Number (Last 4 digits Only)
* See Attachment		

Total Delaware Resident Employees: 20 Total Number of Employees: 26

% of Delaware Residents (Delaware Residents Divided by Total Employees): 77%

	NAME	STREET ADDRESS	CITY	ST	ZIP	SS#
1	Jason Roth		Laurel	DE	19956	90
2	Jason Killen		Frankford	DE	19945	18
3	Brian Reed		Georgetown	DE	19947	00
4	George Carey		Selbyville	DE	19975	69
5	Dustin Brittingham		Georgetown	DE	19947	01
6	George Pfaller		Georgetown	DE	19947	48
7	W. Jeffrey Timmons		Rehoboth Beach	DE	19971	52
8	James Webb		Harrington	DE	19952	63
9	Donnie Baker		Laurel	DE	19956	60
10	Adam Ash		Frankford	DE	19945	24
11	Derek Dykes		Laurel	DE	19956	74
12	Aaron Woods		Seaford	DE	19973	25
13	Alfred Bangert		Laurel	DE	19956	92
14	Daniel Fleetwood		Frankford	DE	19945	68
15	Richard Gedon		Selbyville	DE	19975	24
16	David Linehan		Millsboro	DE	19966	85
17	Michael Haymond		Greenwood	DE	19950	01
18	John Basch		Salisbury	MD	21801	96
19	Russell Pfaller		Pittsville	MD	21850	98
20	Lisa Bloom		Ocean City	MD	21842	74
21	Mark Caldwell		Ocean City	MD	21842	20
22	Richie Wright		Salisbury	MD	21801	40
23	Jose Cordoba		Frankford	DE	19945	42
24	Antione Johnson		Seaford	DE	19973	29
25	Erik Diaz		Ocean City	MD	21842	15
26	Victor Martinez-Taylor		Selbyville	DE	19975	42

The street addresses and the leading 2 digits of the last four digits of each employee have been redacted to preserve the confidentiality of these employees, in accordance with the amended protocol for EER applications.